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StarTeam File Federation 1.0

User Guide

Contents

Overview

StarTeam File Federation enables StarTeam's release and change management capabilities in a diverse SCM (Software Configuration Management) customer environment. By federating file metadata and optional content, StarTeam (and StarTeam Agile) provide additional benefits to these external SCM tools by enabling consistent views and analytics of all software artifacts being released. Features such as release snapshots, time warping, and embedded traceability analytics (such as Task-based test coverage and code complexity) are possible for all artifacts managed by or federated with StarTeam via File Federation and Tasktop Sync.

Currently, StarTeam File Federation is supported for Subversion, where all file commits in Subversion are one-way federated to a StarTeam File or custom proxy component.

How it Works

The Subversion repository has built-in hook script files, which are stored inside the `hooks` directory. StarTeam File Federation uses the post-commit hook, which is executed after a successful commit is performed by the Subversion commit command (`ci`).

Once the post-commit hook is implemented, it executes the File Federation batch file, which gets the following as input:

- Subversion repository path
- Subversion repository committed revision number
- StarTeam connection string
- File Federation XML map file
- User map file
- Encrypted StarTeam password file

The File Federation batch file then starts the following one-way federation process from Subversion to StarTeam:

- The federation process uses a StarTeam connection string to connect to the StarTeam StarFlow Extensions project and looks for the File Federation `map` file and `users` file within the `Federation` folder.
- The federation process reads the File Federation `map` file to get the source Subversion repository and the target StarTeam repository.

Subsequently, File Federation automatically performs the following tasks to complete the process:

- Analyzes the committed changesets in Subversion since the last successful federation across all the StarTeam File Federation maps, determines how many Subversion changesets need to be federated and what the changes are in each changeset.
- Maps the Subversion author to a StarTeam user, captures the Subversion log message and transaction time.
- Processes the Subversion changes to StarTeam equivalent changes.
- Submits all changes into a StarTeam Change Package, which has a unique name.
- Commits the changes in StarTeam.
- Creates traces from the federated files and proxy items to the committed Change Package.

System Requirements

StarTeam File Federation is implemented in Java and can be installed on Microsoft Windows systems and any system that supports Sun Microsystems Java Virtual Machine 1.6.0_29. However, only the following Java-enabled platforms have been tested for compatibility with this product.

System Area	Requirement
Platforms	Microsoft Windows Server 2003 R2 SP2 (32-bit)
	Microsoft Windows Server 2008 (32- and 64-bit)
	Microsoft Windows Server 2008 R2 (64-bit)
StarTeam	StarTeam Server 12.5 (or later)
	StarTeam SDK 12.5 (Java) (or later)
Subversion	CollabNet Subversion Edge 2.2.1
	SVN Kit Library 1.3.7

Virus Scanning Utilities

Every StarTeam Server computer should be equipped with a virus protection utility that has up-to-date virus definition files and the settings should be set to alert only the administrator. The StarTeam administrator should halt the StarTeam Server immediately upon virus detection, perform a full StarTeam backup, and then follow the instructions provided by the virus protection vendor for cleaning the virus from the infected file.

If the infected file cannot be cleaned or if problems exist, visit the Micro Focus SupportLine Web site at *http://supportline.microfocus.com* for assistance before restarting the Server. Some viruses can be immediately destructive to the repository and in rare cases, data loss is inevitable. Micro Focus strongly recommends that regular backups be performed.

A virus that might be a nuisance to a file system can be far more destructive when checked into the repository. For example, many virus protection utilities are set by default or can be set to delete infected files. If an archive file is deleted by the virus protection utility, data may be lost.

Another example is that a virus may not be detected in the archive and may sit dormant waiting to infect the computers of all project users. Your network will rapidly spread the virus and a data loss could occur.

Note: If any process or program such as anti-virus software alters files under StarTeam control, the system could behave erratically. It is highly recommended that these processes not be allowed to modify system or data files under StarTeam control.

Installation and Configuration

The installation of StarTeam File Federation includes the setup and configuration of File Federation, Subversion, and StarTeam files.

Installing and Configuring File Federation

The File Federation binaries can be installed on Subversion, StarTeam, or a remote system. Micro Focus recommends saving them locally to the Subversion system so File Federation has reliable access to files stored on the Subversion server.

1. Locate the File Federation folder in the StarTeam Server installation directory.

   > **Note:** The File Federation tool is installed by the StarTeam Server in the following location: `C:\Program Files\Borland\StarTeam Server 12.5\Utilities\FileFederation`.

2. Copy the post-commit batch file (`post-commit.bat` for Windows) to the Subversion `hooks` directory.

3. Edit the `post-commit.bat` file to update the StarTeam connection string, map file name, user file name, File Federation binary path, and Java executable path. Listed below are examples:

Option	Description Example
REM --- Java executable	set `JAVA=C:\Program Files\Borland\Java\Sun1.6.0_29\bin\java.exe`
REM --- File Federation library path	set `FEDERATION_BIN=C:\Program Files\Borland\StarTeam Server 12.5\FileFederation\stfederation.jar`
REM --- StarTeam URL	set `ST_URL=starteam://Administrator:Administrator@127.0.0.1:49201`
REM --- File Federation map file name	set `MAP_FILE=StFileFederation_Win32.xml`
REM --- File Federation user file name	set `USERS_FILE=users.properties`
REM --- File Federation password file name	set `PASSWORD_FILE="AdminPassword.pwd"`
REM --- Run	call `%JAVA% -jar %FEDERATION_BIN% %ST_URL% %MAP_FILE% %USERS_FILE% %PASSWORD_FILE% "%2"`

4. Edit the File Federation map file.

   The File Federation map file contains all the parameters needed to run File Federation. All the parameters, description, and instructions are available inside the File Federation template file. However, you do need to edit the following values to match your environment:

XML Tag	Description
<GENERAL> General information used across all of the mapped configurations.	
SMTP_ADDRESS	Mail server IP address
SMPT_PORT	Mail server port
SMTP_USER	Mail username/email (optional if authentication is false)

XML Tag	Description
SMTP_PASSWORD	Mail user password (optional if authentication is false)
SMTP_AUTH	True / False (use authentication)
MAIL_FROM	Email address (from)
MAIL_TO	Email address (to), the email address of the system administrator
BASE_DIR	Path of the base directory where logs and temp directories are created
ST_URL	StarTeam URL
ST_SERVER	StarTeam Server Address `<ST_SERVER>127.0.0.1</ST_SERVER>`
ST_PORT	StarTeam Server Port `<ST_PORT>49201</ST_PORT>`
ST_USER	StarTeam user to be used by File Federation with password encrypted in `AdminPassword.pwd` `<ST_USER>Administrator</ST_USER>`
SVN_URL	Subversion URL
SVN_USR	Subversion admin user name
SVN_PASSWORD	Subversion admin user password
USER_MANAGEMENT_SYSTEM_USED	True/False (whether LDAP is used to manage users across the organization)
SCS	The code for Source Control System used. 0 for Subversion. Don't change (system use).
<MAP> You can have more than one map tag in a single map file.	
SVN_PATH	Mapped SVN path (from)
ST_PATH	Mapped StarTeam path (to). This path should begin as an empty folder in StarTeam where the SVN path content will be copied into on the first run of the Federation tool.
ST_PROXY_OBJECT_NAME	The named federated proxy
ST_PROXY_NAME_PROPERTY	The name of `name` property of the federated proxy
ST_CHANGESET_PROPERTY	The name of `changeset` property of the federated property (only for non-content proxy)
SVN_PROXY_URL_FIELD	StarTeam field name to store Subversion item path

5. After the map file is saved, add it to the StarFlow Extensions project in the `Federation` folder.
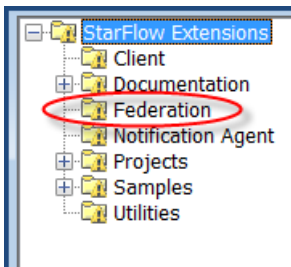
6. Edit the `users.properties` file.

This file maps Subversion users to StarTeam users. If the Subversion user name is in use in StarTeam, then the `users.properties` file must map the user to the same or a different user name in StarTeam. If a Subversion user does not have a mapped entry or if the mapped user does not exist in StarTeam, then a StarTeam user with the same logon name as Subversion will be matched or created in the background.

Example:

```
# svnlogon=starteamlogon
admin=Administrator
```

7. Once the `users.properties` file is saved, add it to the StarFlow Extensions project in the `Federation` folder.

8. Create the `AdminPassword.pwd` file. Run the following command using `STCMD` to create the encrypted password file for storing the StarTeam Administrative user's password:

```
C:\Program Files (x86)\Borland\StarTeam SDK 12.5\Lib\stcmd.exe store-
password –password "password" -epwdfile C:\Program Files\Borland\StarTeam
Server 12.5\FileFederation\AdminPassword.pwd
```

9. After the `AdminPassword.pwd` file is created, add it to the StarFlow Extensions project in the `Federation` folder.

Managed Paths

A managed path is a mapped path between Subversion and StarTeam, which is configured in the map file.

For example, when you map Subversion path `/branches/Release 1.0/map_1` to StarTeam path `/Source Code/map_1`.

Managed paths are monitored when the federation process starts. Any changes you make outside the managed paths are ignored, but any changes you make within the managed paths are federated.

The map file can contain more than one map configuration. Each map configuration should have different managed paths than the others, and may have the same or different proxy types (for example, File, Change Request, or custom type) than the others.

Subversion Operations with Special File Federation Considerations

You should not try to move or copy Subversion items outside the managed path or move items into the managed path. Below are scenarios describing what could happen if those Subversion operations are performed.

Use Case 1

When you move or copy an item from somewhere in the Subversion side of the managed path, File Federation detects the change and tries to locate the source item. However, File Federation cannot do the move because the source does not exist in the StarTeam side of the managed path, so it treats the move as an add and a new item is added to StarTeam.

In this case, the history is not maintained because the federation process overrides the actual move with adds. The source item does not have a defined proxy type, so the added items inherit the defined proxy type in the map configuration file for the managed path.

Use Case 2

When you move an item from the Subversion side of the managed path to somewhere within Subversion, File Federation detects the change and tries to locate the target path within the StarTeam side of the managed path. However, File Federation cannot do the move because the target path does not exist in StarTeam, so the federation process overrides the move and treats it as a delete.

The items copied outside the managed path are ignored by File Federation and are not synched. You should not try to copy or move items across managed paths with different proxy types, because this causes the systems to be out of sync.

For example, if you move an item from `managed path1` to `managed path2` in Subversion, the item is deleted from `managed path1` and does not appear in `managed path2` in StarTeam.

File Federation Setup

The File Federation process runs in the background and can also be set to run at scheduled intervals or in real-time mode, by configuring the File Federation batch file using Windows/Linux job schedulers.

The File Federation process can be configured to run in either of two modes: Real-time or Scheduled. Prior to setting up File Federation, you must choose and define a mode.

Real-time Mode Configuration

You can configure File Federation to run in a real-time-mode by using the post-commit hook, which is executed after a successful commit is performed by the Subversion commit command (`ci`) .

To configure the federation process in real-time mode, you must configure the post-commit batch file (see *Configuring the Federation*) and edit the post-commit hook file (see *Subversion Setup*).

Once the post-commit hook is implemented, it executes the File Federation batch file, which gets the following as input:

- Subversion repository path
- Subversion repository committed revision number
- StarTeam connection string
- File Federation XML map file
- User map file
- Encrypted StarTeam password file

Scheduled Mode Configuration

You can also configure File Federation to run in a scheduled mode, which means that the federation job processes the backlog at periodic intervals. For example, in Windows you can create a scheduled task to run the post-commit batch file every day at a certain time.

In this case, File Federation determines the last successful run and retrieves the StarTeam Change Package number, Subversion changeset number, and then performs the following actions:

IF the StarTeam Change Package Number is	THEN File Federation
Same as the latest Subversion change set number	Does not do anything because nothing was changed in Subversion and there is no need to run the federation process.
At least one revision less than the Subversion changeset number	Starts the federation process. File Federation processes each Subversion delta layer separately into new StarTeam change packages.
At least one revision more than the Subversion changeset number	The federation process immediately fails and alerts the system administrator via email. **Note:** This situation should not happen.

File Federation alerts the assigned StarTeam administrator via email regarding all successful and failed federations. The email includes details on what changed in Subversion and how it was federated to StarTeam. It also contains the source, target federated paths, author, date/time, and log comment.

In case of failure, the StarTeam administrator needs to analyze the federation log files and pass them to Micro Focus product support.

Some common failure scenarios:

- Not enough write access rights for the StarTeam File Federation user.
- Not enough read access rights for the Subversion federation user.
- Someone modified the folders and items in StarTeam outside the federation.

If the File Federation failed to commit a change package or was offline when a number of Subversion commits took place, the federation process can start from the point where it failed, and can carry the federation forward until all Subversion changesets are federated with StarTeam. Each time File Federation starts, it evaluates the latest Subversion changeset number and latest StarTeam Change Package number, and then it processes the backlog until Subversion and StarTeam are in sync.

Subversion Setup

Subversion needs to be installed on either a Windows or Linux system. Prior to configuring Subversion for use with File Federation, follow the Subversion installation steps, which are provided by the Subversion vendor.

1. Ensure the Subversion repository is created and available. This repository is referenced in the StarTeam File Federation map file.
2. Update the post-commit hook file using a text editor. The file is located at: `C:\csvn\data\repositories\<RepositoryName>\hooks`. Add the following line at the end of the file: `post-commit.bat "$REPOS" "$REV"`

   > 🖉 **Note:** `post-commit.bat` is the batch file provided by the File Federation installation package. `$REPOS` is a variable passed to the batch file and it contains the svn repository path. `$REV` is a variable passed to the batch file, and it contains the svn commit revision number.

3. Use the following standard Subversion repository layout:
   ```
   /trunk
   /branches
   /tags
   ```
4. Ensure the Subversion File Federation user has access across all of the federated Subversion paths.

StarTeam Setup

Make sure the StarTeam File Federation user has read/write access rights on the mapped StarTeam folders.

> ⚠️ **Important:** No user should modify the federated folders and items in StarTeam. If done, this corrupts the federation process and it will be out-of-sync.

1. Ensure the File Federation user also has access rights to do the following StarTeam operations:

   - Add Item
   - Add Folder
   - Modify Item
   - Check-in and check-out Files
   - Modify Folder

- Delete Item
- Delete Folder
- Move Item
- Move Folder
- View Item History
- View Folder History
- Create Links and Traces
- Create View Labels
- Modify View Labels
- Exclusively Lock Items
- Exclusively Lock Folder
- Break Exclusive Lock for Folder and Item
- Create StarTeam Users
- Create StarTeam Groups
- Change User/Time Operation Time

> **Note:** Item can also be a File or a custom component type.

2. Create a custom field for the Subversion item path. File Federation stores the path of the federated item in the custom field. Add the custom field name to the File Federation map file.

   Example:
   ```
   Field name: Usr_SVNFileURL
   Type: Text
   Minimum length: 255
   ```

   > **Note:** The field should be created for all types of federated items.

3. Create a custom field for the Subversion changeset number.

   For custom proxy types only, File Federation stores the Subversion changeset number inside a custom field. You should use the custom field as a descriptor for the custom proxy type. Creating the custom field while creating the custom proxy inside the proxy XML file will do this. Refer to the sample custom proxy XML file, which is included in the File Federation folder.

4. If you do not have a StarFlow Extensions project, then you need to create one.

   You should have this project if you are implementing custom forms and a custom workflow for your items.

5. After you have created the project, create a `Federation` folder under the root folder of the main view.

6. Add the File Federation map and user files to the `Federation` folder.

The File Federation process connects to the StarFlow Extensions project to supply the map and user files, then it reads them to execute the federation. If the supplied map and user file names do not exist in the File Federation folder, then the federation will exit with a descriptive error message.

Subversion Commands

The following Subversion commit commands are supported in this version of File Federation.

Function	SVN Command
Add File/Folder	`svn add <item>`
Check-in File	`svn ci <item>`
Delete File/Folder	`svn del <item>`
Move File/Folder	`svn mv <item> <target_path>`
Move and Rename File/Folder in one command	`svn mv <item> <target_path>/ <new_item_name>`
Rename and Move File/Folder in one command	`svn ren <item> <target_path>/ <new_item_name>`
Rename File/Folder	`svn ren <item> <new_item_name>`
Copy File/Folder	`svn cp <item> <target_path>`

Micro Focus Support

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For more information about Micro Focus support services, visit the Micro Focus SupportLine Web site at *http://supportline.microfocus.com* where registered users can find product upgrades as well as previous versions of a product. Additionally, users can find the Knowledge Base, Product Documentation, Community Forums, and support resources.

When contacting support, be prepared to provide complete information about your environment, the product version, and a detailed description of the problem, including steps to reproduce the problem.

For support on third-party tools or documentation, contact the vendor of the tool.

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